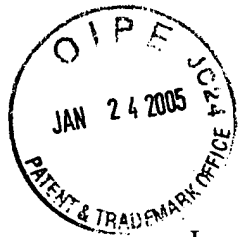


AF 2005



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)	Examiner: Te Y Chen
Shamim Alpha)	
)	Art Unit: 2161
Serial No.: 09/885,356)	
)	
Filed: June 20, 2001)	
)	
For: METHOD AND SYSTEM FOR RESPONSE TIME)	
OPTIMIZATION OF DATA QUERY RANKINGS AND)	
RETRIEVAL)	
)	
Date of Last Office Action:)	Attorney Docket No.:
November 16, 2004)	27252.1
)	
)	

January 19, 2005

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

This Appeal Brief is timely provided to support the Notice of Appeal filed November 22, 2004.

CERTIFICATE OF MAILING

Date of Deposit: January 19, 2005

I hereby certify that these papers are being deposited with the United States Postal Service with sufficient postage as "First Class Mail in an envelope addressed to: Board of Patent Appeals and Interferences, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450

Doreen Melchior
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OID-2000-149-01

1. Real Party in Interest:

The real party in interest is Oracle International Corporation.

The inventor is Shamim A. Alpha, who on June 19, 2001 assigned his interest to Oracle Corporation, 500 Oracle Parkway, Redwood Shores, California, 94065, a Delaware Corporation. On October 30, 2003, Oracle Corporation then assigned its interest to Oracle International Corporation (OIC), a California Corporation with a place of business at 500 Oracle Parkway, Redwood Shores, California, 94065.

2. Related Appeals and Interferences

There are no other prior and/or pending appeals, interferences, or judicial proceedings that are related to, directly affect, or that will be directly affected by or have a bearing on the Board's decision.

3. Status of Claims

Claims 1-23 are pending in the application.

The rejection of claims 1-23 is appealed.

Claims 1-19 and 21-23 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement for purportedly introducing new matter.

Claims 1-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wical (Wical) (U.S. Patent No. 6,460,034), in view of Yanagihara et al. (Yanagihara) (U.S. Patent No. 6,161,102).

Paragraphs [0006] and [0007] of the specification stand objected to under 35 U.S.C. §132 for purportedly introducing new matter.

4. Status of Amendments

No amendments were filed subsequent to the Final Office Action.

5. Summary of Claimed Subject Matter

The claimed subject matter concerns improving response time when retrieving documents that might satisfy a search query. Example systems and methods first generate preliminary relevance scores for documents without retrieving the documents (e.g., “documents are pre-classified into score ranges before actual relevance scores are computed for each document” Specification paragraph [0035]). Then, a small set of most relevant documents is retrieved and a final relevance score is computed for only those documents that are retrieved. (Specification Paragraph [0026]) Conventional systems do not generate the first preliminary relevance score. Rather, conventional systems retrieve all documents that satisfy a search query, compute a final relevancy score for all the retrieved documents, and then rank the documents.

Unlike conventional systems, like those described in the references, a smaller number of documents is retrieved and thus a smaller number go through complete relevance scoring. Therefore, response time is optimized for retrieving relevant documents by at least two differences between the claimed methods and the conventional systems. As described in paragraph [0026] of the specification, “the most relevant documents can be identified without having to compute the relevance scores of the entire set of candidate documents. Thus, a small set of most relevant documents can be retrieved without having to retrieve the entire set of candidate documents.”

Independent claim 1 concerns a computer-implemented method for optimizing response time when retrieving documents relevant to a search query. Rather than retrieve all documents that match terms in a search query and computing a complete relevance score for all the documents, independent claim 1 describes first partitioning a set of candidate documents into relevance score bins (Specification paragraph [0033]) based on a pre-retrieval relevance score (Specification paragraph [0006]). Independent claim 1 then describes retrieving only those documents associated with the most relevant score bin(s) (paragraph [0033]). The references do not describe score bins and do not teach or suggest associating a document to a relevance score bin based on a total matched term weight as recited in claim 1. Rather, the references describe

retrieving all documents that satisfy a search query and doing a complete relevance score for all the retrieved documents.

Independent claim 7 concerns a computer-readable medium having computer executable instructions for performing a method similar to claim 1. The method claim recites retrieving only most relevant documents based on their association with a highest relevance score bin without retrieving other candidate documents. Note that the claim explicitly calls out “without retrieving other candidate documents”.

Independent claim 8 concerns an object retrieval system (Specification, paragraph [0007]) that includes logic (logic 130, Figure 1) for identifying candidate objects, logic (logic 135, Figure 1) for ranking terms in a search query with weights (Specification, paragraph [0034]), and retrieving only a set of most relevant objects based on their assignment to a score bin. The most relevant objects are assigned to a score bin based on a matched term weight. The most relevant documents are retrieved from the most relevant score bin without retrieving the candidate objects from other less relevant score bins.

Independent claim 13 concerns a computer-implemented method for retrieving only the most relevant documents from a set of candidate documents rather than retrieving all the documents in a document space. Claim 13 describes determining which documents to retrieve based on their association with a relevance score bin. The references describe retrieving all documents that match a query and determining a final, complete relevancy score for all the retrieved documents.

Independent claim 20 concerns a computer-readable medium that has computer executable instructions for performing a method like that described in claim 13.

Independent claim 21 concerns a computer-implemented method for optimizing response time by retrieving fewer (e.g., more relevant) documents from a document space based on a preliminary relevance score. The preliminary relevance score can be used to partition the

document space into score bins (Specification, paragraph [0026]) and then only documents from the most relevant score bins are retrieved and subjected to a complete relevance score ranking (Specification, paragraph [0026]).

6. Grounds of Rejection to be Reviewed on Appeal

Claims 1-19 and 21-23 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement for purportedly introducing new matter. The Office Actions have consistently misapplied new matter rejections. Under the standard presented in the Office Actions, it would be practically impossible to ever amend an application, even to correct a misspelled word. Thus, the 35 U.S.C. §112, first paragraph rejections are appealed.

Claims 1-22 stand rejected under 35 U.S.C. §103(a) as being obvious in light of Wical (Wical) (U.S. Patent No. 6,460,034), in view of Yanagihara et al. (Yanagihara) (U.S. Patent No. 6,161,102). These references are not now, and Wical never has been, relevant to the novel two phase approach presented and claimed in the Application. Thus, the 35 U.S.C. §103(a) rejections are appealed.

Paragraphs [0006] and [0007] of the specification stand objected to under 35 U.S.C. §132 for purportedly introducing new matter. As it has in the claims, the standard for new matter has been misapplied to the specification and thus these objections are discussed.

7. Argument

At no time have the objections or rejections addressed the novel two phase approach to minimizing response time for document retrieval as described in the Application. Instead, the Office Actions have consistently presented rejections based on irrelevant references and having no basis in the MPEP.

35 U.S.C. §112, first paragraph

The final Office Action asserts that independent claims 1, 7, 8, 13, and 21 include subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) ... had possession of the claimed invention. Specifically, the final Office Action claims that the phrase "of the search query" in claims 1, 7, 8, 13, and 21 is new matter because it is not supported by the original filed specification. This is incorrect because the phrase is supported in both the claims and in the specification. Similarly, the final Office Action asserts that the phrase "based on a sum of the term weights of the terms in the search query" in claim 1 is new matter because it is not supported by the original filed specification. This is also incorrect because the claim is both self-supporting and supported in the specification. Throughout the prosecution of this Application, additional and/or amended text has consistently and incorrectly been equated with new matter. The Office Action has even issued new matter rejections for phrases suggested by the Examiner and agreed upon during a telephonic interview. Thus, these new matter rejections are baseless and should be withdrawn.

MPEP §706.03(o) teaches that new matter includes the addition of wholly unsupported subject matter. Simple stylistic changes that do not add elements, limitations, or anything else do not add new matter to an application. Copying a phrase from a preamble into the body of a claim at the Examiner's request to make the claim read more clearly does not introduce new matter. Arguments supporting the appeal of each of the claims rejected under 35 U.S.C. §112, first paragraph, are now presented.

Claim 1: “Of the search query”

The preamble of claim 1 reads, “where the search query includes one or more terms.” The rejected portion of claim 1 reads “assigning a term weight to each of the terms **of the search query**.” The rejection is predicated upon the addition of the phrase “of the search query” to the rejected portion. This rejection does not withstand scrutiny. According to the rules of antecedent basis, “the terms”, which appears in the first element of claim 1, must, due to use of the definite article “the”, refer back to the “one or more terms” called out in the preamble. Therefore, “of the search query” is not even required to identify unambiguously that “the terms” refers to the terms in the search query. Thus, “of the search query” is not new matter in claim 1 since it merely reiterates that “the terms” refers to the terms in the search query as spelled out in the preamble.

In addition to the claim being self-supporting, the specification also supports the fact that search queries have terms. For example, paragraph [0028] reads “... that match the terms of the query”. Similarly, paragraph [0006] reads, “a search query where the search query includes one or more terms”, and paragraph [0007] reads, “a search query that has one or more terms.” Additionally, paragraph [0023] reads, “[a] search query typically includes one or more keywords ... that represent subject matter or content that a user wishes to locate. A keyword, phrase or attribute will be referred to as a ‘term’ ”. Therefore, the specification supports the fact that a query may include one or more terms. Therefore, “of the search query” is not new matter in claim 1.

Claim 1: “based on a sum of the term weights of the terms in the search query”

The new matter rejection is directed to the language “based on a sum of the term weights of the terms in the search query”. Paragraph [0033] reads “[a] document receives a final relevance score as a function of each matched relevance score and its term weight.” Similarly, paragraph [0034] describes an example summation process where it describes associating documents to score bins “based on the sum of matched term weights.” (Block 225, Figure 2) Table (3) in paragraph [0034] provides an example of summing matched term weights. Likewise, paragraph [0035] provides another example of summing matched term weights (e.g., “[t]hus, their matched

term weight is $4+2+1 = 7$). Thus, the associating of documents to score bins based on a total matched term weight is supported in several places throughout both the description and the claims and therefore is not new matter. Therefore, the addition of the larger phrase “based on a sum of the term weights of the terms in the search query” is not new matter in claim 1 and simply reiterates facts called out in the specification and the claims.

Claim 7: “Of the search query”

The new matter rejection appears to assert that the fact that a search query has terms is not disclosed in the application. However, that search queries have terms is disclosed in both the specification and even in the preamble of the rejected claim. The preamble of claim 7 reads, “where the search query includes one or more terms.” According to the rules of antecedent basis, “the terms” refers back to the “one or more terms” described in the preamble. The added language is internally supported in the very claim in which it appears. Thus, “of the search query” is not new matter in claim 7.

In the specification, paragraph [0028] reads, “... that match the terms of the query”, paragraph [0006] reads, “a search query where the search query includes one or more terms”, and paragraph [0007] reads, “a search query that has one or more terms.” Paragraph [0023] reads, “[a] search query typically includes one or more keywords ... that represent subject matter or content that a user wishes to locate. A keyword, phrase or attribute will be referred to as a ‘term’”. Thus the specification supports the fact that a query may include one or more terms. Therefore, “of the search query” is not new matter.

Claim 8: “Of the search query”

Like the new matter rejection applied to claim 7, the new matter rejection applied to claim 8 is defeated by examining the claim and the specification. Both the claim and the specification make clear that search queries can have one or more terms. The rejections illustrate the incorrect interpretation of the new matter rejection to include practically any edits to an application.

Under this approach, an Applicant would likely not even be allowed to change Misisipi to Mississippi because the additional letters would be rejected as new matter.

The first element of claim 8 reads, “a search query having one or more terms.” Thus, according to the rules of antecedent basis, “the terms” refers back to the “one or more terms” described in the first element. Therefore, “of the search query” is internally supported in the claim in which it appears. Thus, “of the search query” is not new matter in claim 8, and merely reiterates that “the terms” refers to the terms in the search query as spelled out in the first element.

In the specification, paragraph [0028] reads, “... that match the terms of the query”, paragraph [0006] reads, “a search query where the search query includes one or more terms”, and paragraph [0007] reads, “a search query that has one or more terms.” Paragraph [0023] reads, “[a] search query typically includes one or more keywords ... that represent subject matter or content that a user wishes to locate. A keyword, phrase or attribute will be referred to as a “term”. Thus, the specification supports the fact that a query may include one or more terms. Therefore, “of the search query” is not new matter in claim 8.

Claim 13: “Of the search query”

Claim 13 does not include the phrase “of the search query”.

A rejection based on a phrase that does not appear in the rejected claim should likely be withdrawn. Similarly baseless rejections appeared in both the first Office Action and second Office Action and thus are briefly discussed below to alert the Board to unfounded rejections that have hampered advancing the prosecution of this Application.

Claim 21: “Of the search query”

Claim 21 also does not include the phrase “of the search query” and a new matter rejection based on a phrase that does not appear in the rejected claim should be withdrawn. The rejection of claims 13 and 21 based on phrases that do not appear in the claims is inexcusable. Particularly

because similar rejections based on non-existent terms have been presented in prior Office Actions.

Claims 2-6

Claims 2-6 depend from claim 1. These claims stand rejected because they purportedly have the same defects as the claim from which they depend. But claim 1 has been shown to not include new matter and thus Applicant respectfully requests that the rejections of these claims be withdrawn.

Claims 9-12

Claims 9-12 depend from claim 8. These claims stand rejected because they purportedly have the same defects as the claim from which they depend. But claim 8 has been shown to not include new matter and thus Applicant respectfully requests that the rejections of these claims be withdrawn.

Claims 14-19

Claims 14-19 depend from claim 13. These claims stand rejected because they purportedly have the same defects as the claim from which they depend. But claim 13 has been shown to not include new matter and thus Applicant respectfully requests that the rejections of these claims be withdrawn.

Claims 22-23

Claims 22-23 depend from claim 21. These claims stand rejected because they purportedly have the same defects as the claim from which they depend. But claim 21 has been shown to not include new matter and thus Applicant respectfully requests that the rejections of these claims be withdrawn.

Thus, having examined every claim, it is obvious that no new matter was introduced into claims 1-19 and 21-23. But this set of new matter rejections should not be considered alone. The

consistent misapplication of new matter rejections should be considered. Thus, the similarly baseless new matter rejections appearing in previous Office Actions are briefly reviewed.

In the first Office Action claims 1, 8, and 13 were rejected under 35 U.S.C. 112, first paragraph, because they did not define the term Si and the function sum(Wi). The claims simply did not include those terms. These rejections were quite disturbing and were brought to the Examiner's attention in a professional manner. Amazingly, in the second Office Action, claims 1-20 were once again rejected under 35 U.S.C. §112, first paragraph for including the same terms. In particular, claims 13 and 20 were rejected because they did not define the term Si and the function sum(Wi). The Applicant once again examined claims 13 and 20, and still did not find the terms Si and sum(Wi). Again this was pointed out in the Response to the exact same rejection found in the first Office Action. How is an Applicant to respond to the repetition of such rejections, especially after patiently and professionally explaining, both in writing and during a telephonic interview that the terms quite clearly are not in the claims? It is time to put aside these inappropriate new matter rejections and objections and approve the meritorious claims.

35 U.S.C. §103(a)

Claims 1-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wical in view of Yanagihara. Wical is the same reference upon which §103(a) rejections in both the first Office Action and the second Office Action were based. The Applicant asserts that the combination of Wical and Yanagihara does not teach or suggest each and every claimed element and/or limitation and thus the 35 U.S.C. § 103(a) rejections should be withdrawn. Additionally, the Office Actions provide no teaching, motivation, or suggestion to combine the references and thus the 35 U.S.C. §103(a) rejections should be withdrawn for this additional reason.

Specifically, neither reference teaches pre-retrieval scoring and score bin association that facilitates retrieving a smaller set of documents and thus improving response time by computing a final relevance score for fewer documents.

Wical

The Final Office Action and both previous Office Actions rely on Wical, which discloses a system that inputs search queries, retrieves *all* documents that match the search terms in the query (and even some extras that do not match) and outputs a ranked list of documents. (Wical, col. 4, ll. 1-28) This is an example of the type of inefficient system upon which the Application improves.

Since it retrieves and scores *all* documents that match a query, it is not surprising that Wical is silent concerning claimed elements like:

- associating a document to a relevance score bin, and
- retrieving a set of most relevant documents ... **without retrieving** other candidate documents.

Throughout prosecution, the Office Actions have consistently ignored the fact that the claimed systems and methods do not retrieve all documents matched by a query. Additionally, the Office Actions ignore the fact that the claimed systems and methods do not compute a complete

relevance score for all documents that match a query. The Application describes and claims first doing an initial relevance scoring (Specification, paragraphs [0033], [0036]) for documents based on a first relevance scoring method applied to terms in an index, then retrieving a subset (Specification, paragraphs [0038], [0041]) of the documents that satisfy the query based on that initial relevance scoring, and only then performing a second final relevance scoring for members of the smaller, most relevant subset of retrieved documents (Specification, paragraphs [0026], [0036], [0041]).

Wical discloses the opposite, a system that expands a search query and retrieves additional documents that do not even match the search query. For example, claim 1 in Wical reads, “selecting, in response to said query, at least one additional document, not previously selected.” Wical is describing a system that retrieves all the documents that match the query, then (Wical, col. 2, ll. 42-59) completely relevance scores all those documents, and then performs even more processing that facilitates retrieving even more documents. This could not be further from the processing described in the Application, which describes, in paragraph [0008], that “response time is improved”.

The final Office Action cites Wical col. 17, ll. 2-61 as describing associating each combination of matched term weights to a relevance score range based on the total matched term weight where an object that matches a first total term weight is associated to a more relevant score range than an object that matches a second total term weight less than the first total term weight. Wical does not do this. The cited portion of Wical describes scoring and ranking all the documents that match the query (and even some that don't). This does not describe, in any manner, limiting the number of documents that are retrieved through pre-retrieval scoring and partition. Indeed, this describes exactly one of the problems called out in paragraph [0004] of the background section of the Application, which reads, “[i]n other prior information retrieval systems, even when a user is interested in only a few most relevant documents, the ranking system has to retrieve and evaluate an exact relevance score for every single candidate document identified by the search.”

Therefore, the primary reference relied upon in the Office Actions is an example of systems described as deficient in the background section of the Application.

Yanagihara

Col. 11, ll. 55 – col. 12, ll. 14 of Yanagihara describes a system that limits the number of documents presented to a user based on final relevance scores that are computed for every document that matches terms in a search query. Once again, all documents that match a query are retrieved and all documents are scored. Conversely, the Application describes example systems and methods that pre-score documents before retrieval, that retrieve a subset of documents, and only then compute a final relevance score.

One cited portion of Yanagihara, col. 12, ll. 4-6 reads, “if 50 matches to the request are found only the 20 most relevant articles will be displayed to the user”. While only 20 articles may be displayed (col. 12, ll. 3-6), *all* documents that match a query will be retrieved and will receive a final relevance score. (col. 11, ll. 32-38) Col. 11, ll. 64 – 65 reads, “the searching software ranks the retrieved documents.” This means *all* the documents were retrieved and scored. This teaches away from the example systems and methods described in the Application, where only a subset of documents that match the search term queries are retrieved and relevance scored.

There is no motivation to combine the references. Even if there was, the combination of references still does not make the claims obvious. Yanagihara is generally directed towards performing simultaneous information retrieval searches, and/or scheduling multiple information retrieval searches. The problem Yanagihara addresses is that “[w]hile [a] search is being executed, it is not possible for the user to concurrently enter a further search request or to cause that further search request to be executed concurrently with the first search.” (Yanagihara, col. 1, ll. 59-62) This problem is unrelated to reducing the number of documents retrieved by a query and thus reducing the number of documents for which a final relevance score are computed. Thus, there is no motivation to combine this reference with Wical.

The final Office Action asserts that in a system that combines Wical and Yanagihara, it “would be obvious to an ordinary skill [sic] person in the art, at the time the invention is made, to retrieve only those items, because they are the one’s [sic] most interested [sic] and it would be inefficient to retrieve those of lower interest” (pg. 7, para. 20). So the Office Action understands that retrieving all the documents is inefficient. But the Office Action ignores the fact that a system built from a combination of the references would still retrieve all the documents that match a query and would compute a final relevancy score for all the retrieved documents. Only then, after retrieving all the documents and relevance scoring all the documents, would a limit on the number of documents displayed be imposed. This is not what the Application claims.

Thus, the Applicant asserts that the combination of references does not teach or suggest each and every claimed element and/or limitation and thus the 35 U.S.C. § 103(a) rejections should be withdrawn. Additionally, the Applicant asserts that the Office Action has not made out a prima facie case for combining the references, having provided no teaching, motivation, or suggestion for combining the references. Arguments supporting the appeal of each of the claims rejected under 35 U.S.C. § 103(a) are now presented.

Claim 1

With respect to independent claim 1, the combination of references does not disclose retrieving a set of most relevant documents based on association to relevance score bins having a highest relevance score *without retrieving* other candidate documents as claimed in claim 1. Neither of the references teach or suggest this type of pre-retrieval scoring and association to score bins. However, claim 1 describes pre-retrieval association to score bins. Thus, for at least this reason, claim 1 is not obvious in light of the combination of references.

Since the references do not disclose score bins, it is not surprising that the combination of references does not disclose associating documents to relevance score bins based on relative total

matched term weights. For this additional reason, claim 1 is not obvious in light of the combination of references.

Claim 1 is not obvious for an additional reason. Claim 1 concerns a method for optimizing response times for retrieving documents. The elements listed in the final Office Action are all logics that form part of an apparatus. An apparatus is not a method. Thus, the Office Action has not established a prima facie case for rejecting method claim 1.

Claim 2

Claim 2 depends from claim 1. Claim 1 has been shown to be not obvious in light of the combination of references. Therefore claim 2 is similarly not obvious. Claim 2 includes the additional limitation of determining a document relevance independently yet in relation to other candidate documents, which is not disclosed in the combination of references. For this additional reason claim 2 is not obvious. Furthermore, claim 2 is a method claim and the Office Action only provides elements of an apparatus as a basis for the §103 rejection. Thus, the Office Action has not made out a prima facie case for rejecting a method claim.

Claim 3

Claim 3 depends from claim 1. Claim 1 has been shown to be not obvious in light of the combination of references. Therefore claim 3 is similarly not obvious. Claim 3 includes the additional limitation of determining a set of most relevant documents ... *without determining* an exact relevance score for all the candidate documents. The references disclose determining an exact relevance score for all candidate documents. Thus, the references teach away from the method described in claim 3. For this additional reason claim 3 is not obvious. Furthermore, claim 3 is a method claim and the Office Action only provides elements of an apparatus as a basis for the §103 rejection. Thus, the Office Action has not made out a prima facie case for rejecting a method claim.

Claim 4

Claim 4 depends from claim 1. Claim 1 has been shown to be not obvious in light of the combination of references. Therefore claim 4 is similarly not obvious. Furthermore, claim 4 is a method claim and the Office Action only provides elements of an apparatus as a basis for the §103 rejection. Thus, the Office Action has not made out a prima facie case for rejecting a method claim.

Claim 5

Claim 5 depends from claim 1. Claim 1 has been shown to be not obvious in light of the combination of references. Therefore claim 5 is similarly not obvious. Claim 5 includes the additional limitation of defining a total relevance score range, which is not disclosed in the references. Also, claim 5 includes defining relevance score bins within the total relevance score range as a function of the total term weight. This is not disclosed in the references. For the additional reasons claim 5 is not obvious. Furthermore, claim 5 is a method claim and the Office Action only provides elements of an apparatus as a basis for the §103 rejection. Thus, the Office Action has not made out a prima facie case for rejecting a method claim.

Claim 6

Claim 6 depends from claim 1 via claim 5. Claim 1 has been shown to be not obvious in light of the combination of references. Therefore claim 6 is similarly not obvious. Claim 6 includes the additional limitation of dividing the total relevance score range into one or more relevance score bins having equal sizes. The combination of references does not even disclose score bins and thus does not describe the additional processing of configuring the score bins. Claim 6 is not obvious for this additional reason. Furthermore, claim 6 is a method claim and the Office Action only provides elements of an apparatus as a basis for the §103 rejection. Thus, the Office Action has not made out a prima facie case for rejecting a method claim.

Claim 7

Claim 7 is an independent claim and describes a computer-readable medium having computer executable instructions for performing a method that includes, among other things, retrieving a set of most relevant documents based on association to relevance score bins having a highest relevance score without retrieving other candidate documents. The combination of references does not teach or suggest this claimed element and thus claim 7 is not obvious. Furthermore, the Office Action only provides elements of an apparatus as a basis for the §103 rejection. Thus, the Office Action has not made out a prima facie case for rejecting a computer-readable medium claim. As a computer-readable medium claim, claim 7 is separately patentable from method claim 1.

Claim 8

Claim 8 discloses an object retrieval system that includes logics for identifying candidate objects, ranking objects before retrieval, and for retrieving a set of most relevant objects associated with relevance score ranges having a greatest matched term weight. Claim 8 discloses performing this selective retrieval where candidate objects from other relevance score ranges are not retrieved. The combination of references does not teach or suggest this claimed element and thus claim 8 is not obvious in light of the combination of references. The Office Action cites col. 8, lines 58-65 as support for the assertion that Wical discloses an object retrieval logic. However, col. 8, lines 58-65 describe a query processing module that performs case sensitive query term matching. A case sensitive query term matcher does not perform selective object retrieval as recited in Claim 8.

The Office Action cites col. 17, lines 2-61 as support for the assertion that Wical discloses a ranking logic that performs the actions claimed in claim 8. However, col. 17, lines 2-61 concern displaying a number of stars that indicate the general relevance of a category to a search term. Displaying stars does not disclose performing selective object retrieval based on pre-retrieval scoring. Finally, the Office Action cites col. 23, lines 26-60 as support for the assertion that Wical discloses a ranking logic that performs the actions claimed in claim 8. However, col. 23,

lines 26-60 concern relevance ranking groups after all documents have been retrieved and relevance scored. This is not selective object retrieval based on pre-retrieval scoring. Thus, the Office Action does not provide a single citation to the elements claimed in claim 8. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Claim 9

Claim 9 depends from claim 8 and claim 8 has been shown to be not obvious in light of the combination of references. Therefore claim 9 is also not obvious.

Claim 10

Claim 10 depends from claim 8 and claim 8 has been shown to be not obvious in light of the combination of references. Therefore claim 10 is also not obvious. Additionally, claim 10 discloses a logic for defining a total relevance score range and for defining relevance score ranges within the total relevance score range. The total range and the sub-ranges are subsequently employed to limit document retrieval. The references do not limit document retrieval. Thus claim 10 is not obvious for this additional reason.

Claim 11

Claim 11 depends from claim 8 and claim 8 has been shown to be not obvious in light of the combination of references. Therefore claim 11 is also not obvious. Additionally, claim 11 discloses the retrieval logic including logic for retrieving only objects from the candidate objects that match a highest value of the term weights. The combination of references does not disclose a logic for limiting retrieval and thus claim 11 is not obvious for this additional reason.

Claim 12

Claim 12 depends from claim 8 and claim 8 has been shown to be not obvious in light of the combination of references. Therefore claim 12 is also not obvious.

Claim 13

Claim 13 is an independent method claim that includes retrieving a subset of most relevant documents from a larger set of relevant documents based on assignment to score bins. The combination of references does not disclose score bins, let alone retrieving a most relevant document based on assignment to a score bin. Thus claim 13 is not obvious in light of the combination of references.

Claim 13 is a method claim. The elements listed in the Office Action are all logics that form part of an apparatus. Thus, the Office Action does not establish a prima facie case for rejecting method claim 13. For this additional reason, the rejection of independent claim 13 should be withdrawn.

Claim 14

Claim 14 depends from claim 13 and claim 13 has been shown to be not obvious in light of the combination of references. Therefore claim 14 is also not obvious. Additionally, claim 14 includes identifying the most relevant documents without having to determine a final relevance score for all the candidate documents. Neither of the references discloses this element. In fact, both references specifically rely on retrieving and relevancy scoring all documents that match a query and thus claim 14 is not obvious in light of the combination of references for this additional reason.

Claim 15

Claim 15 depends from claim 13 and claim 13 has been shown to be not obvious in light of the combination of references. Therefore claim 15 is also not obvious. Additionally, claim 15 includes the additional limitation of retrieving documents that match a highest term weight associated to a highest score bin without retrieving documents associated to other score bins. As mentioned above, none of the references disclose score bins. Furthermore, the references do not disclose retrieving documents that match a highest term weight without retrieving documents

associated to other score bins. For these additional reasons, claim 15 is not obvious in light of the references.

Claim 16

Claim 16 depends from claim 13 and claim 13 has been shown to be not obvious in light of the combination of references. Therefore claim 16 is also not obvious. Additionally, claim 16 includes the additional limitation that documents with different total term weights will be associated with different score bins, so that more relevant documents are stored in one set of bins while less relevant documents are stored in another set of bins. The references do not disclose score bins, let alone partitioning relevant documents into score bins based on pre-classification scores. Thus claim 16 is not obvious for this additional reason.

Claim 17

Claim 17 depends from claim 13. Claim 13 has been shown to be not obvious in light of the references and thus claim 17 is also not obvious.

Claim 18

Claim 18 depends from claim 13 and claim 13 has been shown to be not obvious in light of the combination of references. Therefore claim 18 is also not obvious. Also, claim 18 contains the additional element that the associating allows the most relevant documents to be identified independently from other candidate documents. The combination of references does not disclose this element and thus claim 18 is not obvious for this additional reason.

Claim 19

Claim 19 depends from claim 13. Claim 13 is not obvious in light of the references and thus claim 19 is also not obvious.

Claim 20

Claim 20 concerns a computer-readable medium that has computer executable instructions for performing a method that includes retrieving most relevant documents based on score bins. The combination of references does not disclose score bins, let alone retrieving a most relevant document based on a score bin. Thus claim 20 is not obvious in light of the combination of references and is in condition for allowance.

Claim 21

With respect to independent claim 21, the combination of references does not disclose selectively retrieving a subset of a set of documents, where the subset includes documents associated with one or more relevance score bins as claimed in claim 21. Thus, claim 21 is not obvious in light of the combination of references. Additionally, the combination of references does not disclose associating a document to a relevance score bin based on relative total matched term weights. For this additional reason, claim 21 is not obvious in light of the combination of references.

Claim 21 concerns a method of optimizing a response time. The elements listed in the Office Action are all logics that form part of an apparatus. Thus, the Office Action has not established a prima facie case for rejecting the method claimed in claim 21. For this additional reason, the rejection of independent claim 21 should be withdrawn.

Claim 22

Claim 22 depends from claim 21 and since claim 21 has been shown to be not obvious, claim 22 is similarly not obvious. Claim 22 contains the additional limitation that the relevance range is computed dynamically based, at least in part, on the sum of the term weights from the search query. The combination of references does not disclose this limitation and thus claim 22 is not obvious in light of the references. Claim 22 is a method claim. The elements listed in the Office Action are all logics that form part of an apparatus. Thus, the Office Action has not established a prima facie case for rejecting the method claimed in claim 22. For this additional reason, the rejection of claim 22 should be withdrawn.

Claim 23

Claim 23 depends from claim 21 and since claim 21 has been shown to be not obvious, claim 23 is similarly not obvious. Claim 23 contains the additional limitation that the relevance range is computed dynamically based, at least in part, on the sum of the term weights from the search query divided by the greatest common denominator of the term weights. The combination of references does not disclose this limitation and thus claim 23 is not obvious in light of the references. Claim 23 is a method claim. The elements listed in the Office Action are all logics that form part of an apparatus. Thus, the Office Action has not established a prima facie case for rejecting the method claimed in claim 23. For this additional reason, the rejection of claim 23 should be withdrawn.

35 U.S.C. §132

The Office Action recites that paragraphs [0006] and [0007] include new matter that is not supported by the originally filed specification. Specifically, the Office Action claims that the phrase “in a search query” and the phrase “that is based on a sum of the term weights of the matched terms in the search query” in paragraph [0006] is new matter. Additionally, the Office Action asserts that the phrase “of the search query” and the phrase “the total matched term weight, which is based on a sum of the term weights of the matched terms in the search query” in paragraph [0007] is new matter. These phrases were the basis for rejecting claims under 35 U.S.C. §112. Arguments describing why these objections should be withdrawn are now provided.

Paragraph [0006], “in a search query”

This paragraph previously read, in pertinent part, “[t]he candidate documents are identified in response to a search query where the search query includes one or more terms. A term weight is assigned to each of the terms.” Thus, the prior language of paragraph [0006] specifies that a search query includes one or more terms. When the word “terms” is used in the sentence following the sentence that specifies that a search query includes one or more terms, the text is

unambiguous that the “terms” referred to are the “terms” in the search query in the previous sentence. Therefore, the language at issue is not new matter, being a simple re-iteration of a fact made in the immediately preceding sentence.

During a telephonic interview of May 19, 2004, the Examiner suggested that adding the phrase “in a search query” would make paragraph [0006] read better because it would more tightly link “the terms” to the terms in the search query as referenced in the immediately preceding sentence. Therefore, this additional verbiage was added at the Examiner’s request. To receive a new matter objection based on agreed upon stylistic changes was, to say the least, unexpected.

Paragraph [0006], “on a sum of the term weights of the matched terms in the search query”

This paragraph previously read, in pertinent part, “[d]ocuments are associated to a relevance score bin based on a total matched term weight where a document that matches a first total term weight is associated to a more relevant score bin than a document that matches a second total term weight less than the first total term weight.” The Board is directed to paragraph [0034] of the Application where the “total term weight” is described as the sum of matched term weights. Additionally, Table (3) illustrates total term weights being computed as a sum of matched term weights. Similarly paragraph [0035] of the Application provides total term weights being computed as a sum of matched term weights. Restating a fact disclosed at least three other places in an Application is clearly not adding new matter.

Paragraph [0007], “of the search query”

The phrase “of the search query” has already been shown to be supported in the Application. However, specifically concerning the objected to paragraph, the phrase is even internally supported in that paragraph. Paragraph [0007] previously read, in pertinent part, “[t]he system includes logic for processing a search query that has one or more terms. A document retrieval logic identifies candidate documents that match the search query. A ranking logic assigns a term weight to each of the terms...”. The prior language of paragraph [0007] unambiguously states that a search query includes one or more terms. Thus, when the word “terms” appears two

sentences later, the original text is equally unambiguous that the “terms” being referenced are the “terms” in the search query. Thus, the additional language is fully supported, unambiguous, and decidedly not new matter.

Paragraph [0007], “the total matched term weight, which is based on a sum of the term weights of the matched terms in the search query”

This paragraph previously read, in pertinent part, “[t]he ranking logic also groups the candidate documents based on the matched term weight, where a document that matches a first total term weight is associated to a more relevant score range than a document that matches a second total term weight that is less than the first total term weight.” The Board is directed to paragraph [0034] of the Application, which defines that “total term weight” is the sum of matched term weights. Additionally, Table (3) illustrates total term weights being computed as a sum of matched term weights. Similarly paragraph [0035] of the Application shows total term weights being computed as a sum of matched term weights. After reviewing the prior language and the supporting paragraphs and examples, there can be no doubt that this added language does not introduce new matter into the specification.

Claims Appendix

1. A computer-implemented method of optimizing a response time for retrieving relevant documents from a set of candidate documents identified in response to a search query where the search query includes one or more terms, the method comprising the steps of:

assigning a term weight to each of the terms of the search query;

associating a document to a relevance score bin based on a total matched term weight computed for the document being based on a sum of the term weights of the terms in the search query that are matched by the document, where a document that matches a first total matched term weight is associated to a more relevant score bin than a document that matches a second total matched term weight that is less than the first total term weight; and

retrieving a set of most relevant documents based on the association to the relevance score bins having a highest relevance score without retrieving other candidate documents.

2. The method as set forth in claim 1 further including determining a relevance of a document independently from other candidate documents based on the relevance score bin associated to the document.

3. The method as set forth in claim 1 further including determining a set of most relevant documents from the candidate documents based on the relevance score bin associated to the documents without determining an exact relevance score for all the candidate documents.

4. The method as set forth in claim 1 wherein assigning the term weight to a term is based on an inverse frequency scoring.

5. The method as set forth in claim 1 further including:
defining a total relevance score range; and

defining one or more relevance score bins within the total relevance score range as a function of a total term weight, the total term weight being a sum of the term weights from the search query.

6. The method as set forth in claim 5 wherein the total relevance score range is divided into the one or more relevance score bins each having an equal size.

7. A computer readable medium having computer executable instructions for performing a method for optimizing a response time for retrieving relevant documents from a set of candidate documents identified in response to a search query where the search query includes one or more terms, the method comprising the steps of:

assigning a term weight to each of the terms of the search query;

associating a document to a relevance score bin based on a total matched term weight where a document that matches a first total term weight is associated to a more relevant score bin than a document that matches a second total term weight that is less than the first total term weight; and

retrieving a set of most relevant documents based on the association to the relevance score bins having a highest relevance score without retrieving other candidate documents.

8. An object retrieval system comprising:

a logic for processing a search query having one or more terms;

an object retrieval logic for identifying candidate objects that match the search query;

a ranking logic for assigning a term weight to each of the terms of the search query and associating each combination of matched term weights to a relevance score range, the ranking logic grouping the candidate objects based on the total matched term weight where an object that matches a first total term weight is associated to a more relevant score range than an object that matches a second total term weight that is less than the first total term weight; and

a retrieval logic for retrieving a set of relevant objects associated to the relevance score ranges having a greatest total matched term weight without retrieving the candidate objects from other relevance score ranges.

9. The object retrieval system of claim 8 wherein the logic for processing the search query includes a parser that parses the search query to identify the terms.

10. The object retrieval system of claim 8 wherein the ranking logic includes:
logic for defining a total relevance score range; and
logic for defining the relevance score ranges within the total relevance score range as a function of possible term weights that an object can match.

11. The object retrieval system of claim 8 wherein the retrieval logic includes logic for retrieving only objects from the candidate objects that match a highest value of the term weights.

12. The object retrieval system of claim 8 wherein the ranking logic includes means for associating document relevance scores to the relevance ranges based on matched term weight.

13. A computer-implemented method of retrieving most relevant documents from a set of candidate documents that match a search query having one or more terms, the method comprising:

assigning a term weight to each of the terms in the search query;
defining a total relevance score range and a plurality of score bins therein;
establishing a relationship between a total term weight matched by a document and a score bin within the total relevance score range;
associating a score bin to a document based on the total term weight matched by the document; and
retrieving the most relevant documents based on the score bins.

14. The method as set forth in claim 13 wherein associating includes associating a score bin to a document such that a final relevance score of the document is limited to the score bin and the most relevant documents are identifiable without having to determine a final relevance score for all the candidate documents.

15. The method as set forth in claim 13 wherein retrieving the most relevant documents includes retrieving documents that match a highest term weight associated to a highest score bin without retrieving documents associated to other score bins.

16. The method as set forth in claim 13 wherein a score bin is associated to a document such that a document that matches a first total term weight is associated to a more relevant score bin than a document that matches a second total term weight that is less than the first total term weight.

17. The method as set forth in claim 13 wherein the assigning a term weight is based on an inverse frequency scoring.

18. The method as set forth in claim 13 wherein the associating allows the most relevant documents to be identified independently from the other candidate documents.

19. The method as set forth in claim 13 further including displaying the most relevant documents to a user.

20. A computer readable medium having computer executable instructions for performing a method for retrieving most relevant documents from a set of candidate documents that match a search query having one or more terms, the method comprising:

assigning a term weight to each of the terms;

defining a total relevance score range and a plurality of score bins therein;

establishing a relationship between a total term weight matched by a document and a score bin within the total relevance score range;

associating a score bin to a document based on the total term weight matched by the document; and

retrieving the most relevant documents based on the score bins.

21. A computer-implemented method of optimizing a response time for retrieving relevant documents from a set of candidate documents identified in response to a search query where the search query includes one or more terms, the method comprising:

assigning a term weight to each of the terms in the search query;

computing a total matched term weight for a document by matching the terms in the search query to terms associated with the document and summing the term weights of the terms in the search query that match the terms associated with the document, where the terms associated with the document are stored in an index;

associating the document with a relevance score bin based on a total matched term weight, where a first document with a first total term weight in a first relevance range is associated with a first score bin associated with more relevant documents than a second document with a second total term weight in a second relevance range; and

selectively retrieving a subset of a set of documents, where the subset includes documents associated with one or more relevance score bins.

22. The method of claim 21, where the relevance range is computed dynamically based, at least in part, on the sum of the term weights from the search query.

23. The method of claim 21, where the relevance range is computed dynamically based on the sum of the term weights from the search query divided by a greatest common denominator of the term weights.

Evidence Appendix

There is no extrinsic evidence.

Related Proceedings Appendix

There are no related proceedings

Respectfully submitted,

1-19-05

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